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| 09/943,685 | 08/30/2001 | Terry Loughrin | 6039-000293 | 1262 |

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| EXAMINER |
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DUNWOODY, AARON M

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| ART UNIT | PAPER NUMBER |
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3679

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/943,685
Filing Date: August 30, 2001
Appellant(s): LOUGHRIN ET AL.

W. R. Duke Taylor
For Appellant

EXAMINER'S ANSWER

MAILED
JUN 02 2005
GROUP 3600

This is in response to the appeal brief filed 3/21/2005 appealing from the Office action mailed 9/2/2004.

✓

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference

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characters. The brief is deficient because the brief fails to provide a concise explanation of the subject matter defined in the independent claim involved in the appeal, referring to the specification by page and line number.

Further, the summary recites, "The joint component is...fixed from axial movement relative to one of the second shafts (see Figure4); however, Figure 4 fails to illustrate the fixed axial movement.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

A substantially correct copy of appealed claims 1, 5 and 9 appears on page 1 of the Appendix to the appellant's brief. The minor errors are as follows:

Claim 1, line 5, recites "eengaging".

Claim 1, line 6, lacks "transmission without relative rotational movement and enabling".

Claim 1, line 10, lacks "free-motion rotation without torque transmission".

Claim 5 is missing.

Claim 9 is missing.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

| | | |
|--------------|----------------|-----------|
| US 5,706,901 | Walters et al. | Jan. 1998 |
|--------------|----------------|-----------|

| | | |
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| US 4,551,115 | Ferguson | Nov. 1985 |
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(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

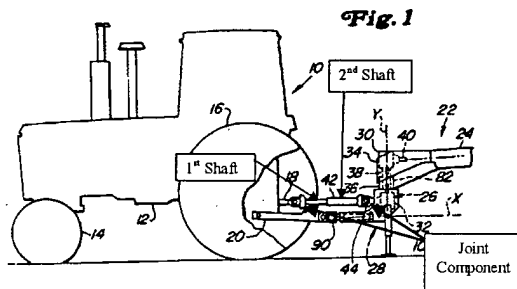
Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walters et al. in view of Ferguson. This rejection is set forth in the prior office action.

(10) Response to Argument

In regards to claim 1, in Figure 1 below, Walters et al discloses a drive shaft assembly (42) for interconnecting a driving component (10) of an agricultural machine and a driven component (22) of an agricultural implement, comprising a first shaft; a second shaft engaging the first shaft for enabling torque transmission and enabling relative axial sliding motion therebetween; and a joint component of a universal joint operably interconnecting one of the first and second shafts to one of the agricultural driving and driven components, the joint component is both rotatable through a specified range of rotation and is fixed from axial movement relative to one of the second shaft, the agricultural driving component of the agricultural machine and the agricultural driven component of the agricultural implement. Walters et al does not disclose the joint component being rotatable through a specified range of free-motion rotation without torque transmission. Ferguson teaches joint component (see Figure 1

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and 3) being rotatable through a specified range of free-motion without torque transmission "to provide a driveshaft coupling of concise configuration capable of damping vibrations" (col. 1, lines 46-50). As Ferguson relates to automobile driveshafts, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a joint component rotatable through a specified range of free-motion without torque transmission to provide a driveshaft coupling of concise configuration capable of damping vibrations, as taught by Ferguson.



In regards to claim 2, Ferguson discloses the joint component including axial grooves and the second shaft includes an end portion having radially extending axial teeth for engaging the grooves and thereby enabling the specified range of relative rotation.

In regards to claim 3, Ferguson discloses the grooves being formed within a bore of the joint component and the teeth extend outward from the end portion, whereby the end portion is received into the bore for enabling engagement between the teeth and the grooves.

In regards to claim 4, Ferguson discloses the grooves being formed in an outer circumferential surface of the joint component and the teeth extend radially inward from

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the end portion, whereby the joint component is partially received into the end portion for enabling engagement between the teeth and the grooves.

In regards to claims 5 and 9, Ferguson discloses a ring engaging with a groove of one of the joint component and the second shaft for fixing the joint component and the second shaft from relative axial motion therebetween.

In regards to claim 6, Ferguson discloses the joint component including axial grooves and one of the driving and driven components includes radially extending axial teeth for engaging the grooves and thereby enabling the specified range of relative rotation.

In regards to claim 7, Ferguson discloses the grooves being formed within a bore of the joint component and the teeth extend radially outward from one of the driven and driving components, whereby one of the driven and driving components is received into the bore for enabling engagement between the teeth and the grooves.

In regards to claim 8, Ferguson discloses the grooves being formed along a stub end of the joint component and the teeth extend radially inward within a bore of one of the driven and driving components, whereby the stub end is partially received into the bore for enabling engagement between the teeth and the grooves.

In regards to claim 10, Ferguson discloses the joint component being a universal joint yoke.

In regards to claim 11, Ferguson discloses the second shaft including a stub end interconnected thereto for operably interconnecting the joint component and the second shaft.

Discussion

Walters et al recites, "A telescopic drive shaft 42 is coupled between a forwardly directed input shaft 44 of the lower gear box 32 and the tractor PTO shaft 18", which establishes the telescoping shaft as prior art. Walters et al is not required to provide a reason or purpose for the telescoping shaft.

The instant application defines "free-motion" as:

The invention is directed toward a drive shaft coupling including a rotational range of 'free-motion' for interconnecting a driving component and a driven component... In almost all instances, the tractor is used for a variety of tasks. Accordingly, various types of secondary agricultural implements must be readily engageable with the tractor. Thus, connection and disconnection of the drive shaft assembly is required. Often, the output shaft of the tractor and the input shaft of the secondary agricultural implement are not sufficiently aligned and thus prohibit quick interconnection therebetween. Thus, it is desirable to provide a drive shaft assembly that includes a range of rotational motion or 'free-motion' to enable interconnection between the input and output shafts when they are out of exact rotational alignment... To this end, it is known in the art to provide a telescoping drive shaft assembly including a rotational range of 'free-motion' along the telescopic interconnection... The joint component is both rotatable, through a specified range of rotation, and is fixed from axial movement relative to one of the second shaft, the driving component and the driven component... In this manner, the present invention segregates the plunging and 'free-motion' functions to separate components of the drive shaft assembly... Further, separation of the plunging and "free-motion" functions enables any kind of plunging components known in the art to be implemented. Additionally, the 'free-motion' function has no kinematic effect on the plunging function... The bore 28 of the second yoke 6 includes a

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series of axially running grooves 29 and the second end 27 of the stub shaft 24 includes a series of radially extending, axial teeth 30. The second end 27 of the stub shaft 24 is received into the bore 28 of the second yoke 6. The teeth 30, respectively, align with the grooves 29. As best seen in Fig. 3, the grooves 29 are generally of a larger width than the width of the teeth 30. As a result, a range of relative rotational motion, or 'free-motion' is provided between the second yoke 6 and the stub shaft 24. The amount of 'free-motion' is provided as the angle A.

The "free-motion" definition of instant application does not exclude elastomeric damper of Ferguson, which may impede but not prohibit free-motion.

Further, Ferguson recites:

Yet another object of the invention is to provide a driveshaft coupling utilizing compressible elastomer elements for vibration damping purposes and lost motion metal-to-metal surfaces are employed to transmit torque upon predetermined elastomer deformation occurring... Metal-to-metal engagement between the drive and driven members occurs upon excessive torque forces being produced. In such event a "lost motion" exists relative to the metal-to-metal drive between the drive and driven members such that such positive engagement occurs only after maximum compression of the elastomers occurs... As will be appreciated from FIG. 5, the configuration of the insert surfaces 60 produces a "lost motion" with respect to relative rotation between the drive and driven members, and engagement between the stem and inserts, as shown in FIG. 5, only occurs when the clearances have been overcome due to relative rotation of the components. The metal-to-metal contact between the stem and insert may occur during vehicle acceleration and braking, but during the majority of the duration of power transmission, torque will solely be transferred through the elastomer and the transmission of vibration damped.

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In regards to the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as Ferguson relates to automobile driveshafts, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a joint component rotatable through a specified range of free-motion without torque transmission to provide a driveshaft coupling of concise configuration capable of damping vibrations, as taught by Ferguson.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

The brief does not contain the items of the brief required by 37 CFR 41.37(c)(1) under the appropriate headings and/or in the order indicated. Summary of claimed

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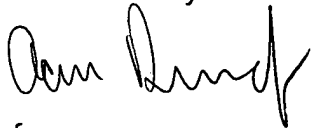
subject matter; Grounds of rejection to be reviewed on appeal; Claim appendix;

Evidence appendix; and Related proceedings appendix.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Aaron Dunwoody

A handwritten signature in black ink, appearing to read 'Aaron Dunwoody', written in a cursive style.

Conferees:

Daniel Stodola DPS

Judy Swann 